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Attorney Docket No. P6263
Client/Matter No. 80168.0343
Express Mail No. EL961394181US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Confirmation No. 3908
James E. Hebert	Art Unit: 2663
Serial No.: 09/932,553	Examiner: Nittaya JUNTIMA
Filed: August 17, 2001	Customer No. **32658**
For: **REDUNDANT COMMUNICATION ADAPTER SYSTEM FOR CONNECTING A CLIENT TO AN FDDI NETWORK**	Doc. No. P6263

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF UNDER 37 CFR § 41.37

I. Real Party in Interest

Sun Microsystems, Inc.
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USA

II. Related Appeals and Interferences

No other appeals or interferences are currently known to Appellant that will directly affect, be directly affected by, or have a bearing on the decision to be rendered by the Board of Patent Appeals and Interferences in the present appeal.

III. Status of Claims

Claims 1-15 are pending in the application. No claims have been allowed, and all pending claims stand rejected. The rejection of claims 1-15 is the subject of this appeal.

IV. Status of Amendments

Appellant filed an Amendment on September 15, 2005 that included a minor modification or clarification to claim 15 to address two 35 U.S.C. §112, second paragraph issues. In the Advisory Action, the Examiner indicated that for the sake of Appeal that this claim amendment would not be entered.

Claims 1-15 are provided in the attached Claims Appendix, with claim 15 being shown in its current state (i.e., without entry of the proposed September 15; 2005 Amendment).

V. Summary of Claimed Subject Matter

Claims 1, 8, and 15 are independent claims that are being appealed.

Claim 1 is directed to a communication adapter system such as adapter system 10 shown in Figure 1 of Appellant's specification. As called for in claim 1 and shown in exemplary fashion in Figure 1, the adapter system 10 includes in a server 16 a primary I/O board 20 and a secondary I/O board 22 as well as a primary switch 28 and a secondary switch 30 that link the adapter system 10 to a network 14 (e.g., a Fiber Distributed Data Interface (FDDI) network as specifically called for in dependent claim 2).

Significantly, the system 10 of claim 1 includes an executable program or "program signals" as called for in claim 1 that is provided in memory on the server 16, e.g., see lines 19-22 on page 9 of the specification. The program signals on the server 16 generate a connectivity signal to the primary switch 28 to test connectivity from the primary I/O board 20 to the primary switch 28. When a response signal is not received from the primary switch 28 in a predetermined time period as determined by monitoring, the executable program or program signals of claim 1 run such that a primary network interface card (NIC) 24 in the server 16 is configured to disable data transfer to the primary switch 28 and a secondary NIC 26 is configured to enable data transfer through the secondary switch 30.

Independent claim 8 is directed to a method of detecting failures in a communication adapter system (such as system 10 of Figure 1 that is used to connect

a client 12 to a network 14). The method is defined in claim 8 to include limitations similar to that of the system of claim 1 in method form. The method of claim 8 is shown in detail in Figure 2 and described in related text of the specification from line 24 of page 9 to line 24 of page 10. Specifically, the method calls for generating a connectivity signal from a primary I/O board 20 to a primary switch 28 (see box 52 of Figure 2) and then, monitoring a primary I/O port of the I/O board 20 to detect a response signal within a predetermined time period (see boxes 54 and 56 of Figure 2). If the signal is not detected, the method of the invention continues as called for in claim 8 and shown in boxed 60 and 62 of Figure 2 with configuring a primary NIC 24 to disable transfer of data from the client 12 to the network 14 and to configure a secondary NIC 26 of a second I/O board 22 to transfer the client data to the network 14.

In this manner, the system of claim 1 and the method of claim 8 are able to test from the I/O board to the switches 28, 30 of the adapter system 16 rather than merely to the NIC cards 24, 26. Further, the system of claim 3 and the method of claim 10 call for generating a connectivity signal to a "remote device" such as routers 32, 34 shown in Figure 1 to further test connectivity between the I/O board 20 and the network 14 (as is described at least at page 5, lines 26-29).

Independent claim 15 is also directed to a communication adapter system (such as system 10 of Figure 1 whose operation is described in the flow chart of Figure 2). The claimed invention differs from the system of claim 1 in that the software described as running on the system 10 is provided as "an adapter mechanism on the server" that operates to generate the connectivity signal to the primary switch." Additionally, as described in the specification in lines 16-19 of page 10 with reference to block 64 of Figure 2, the adapter mechanism configures the secondary NIC 26 to enable active data transfer when a response signal is not detected from the primary switch 28 with this configuration including transferring network information from the primary NIC 24 to the secondary NIC 26. This transferred information is defined in claim 15 to include "IP addresses of other devices connected to the network, netmasks, or broadcasts."

VI. Grounds of Rejection to be Reviewed on Appeal

1. Claims 1-6, 8-13, and 15 stand rejected under 35 U.S.C. §103(a) as being obvious over the background of the invention (Examiner labeled as admitted prior art) in view of U.S. Pat. No. 6,392,990 ("Tosey").

2. Claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the background of the invention in view of Tosey and further in view of U.S. Pat. No. 6,243,838 ("Liu").

Note, claim 15 also stands rejected under 35 U.S.C. §112, second paragraph. This is not a ground of rejection that Appellant is appealing.

VII. Argument

A. Rejection of Claims 1-6, 8-13, and 15 Under 35 U.S.C. §103(a) Based on Appellant's Background Discussion and Tosey is Improper

In the August 24, 2005 Office Action, claims 1-6, 8-13, and 15 were rejected under 35 U.S.C. §103(a) as being obvious over Appellant's Background in view of Tosey. This rejection is traversed based on the following remarks, and Appellant requests that the rejection be reverse as not properly supported.

As discussed in Appellant's Amendment filed September 15, 2005, claim 1 is directed to a communication adapter system that includes in a server a primary I/O board and an secondary I/O board as well as a primary switch and a secondary switch that link the adapter system to a network. An executable program is provided on the server that generates a connectivity signal **to the primary switch** to test connectivity from the primary I/O board to the primary switch. When a response signal is not received **from the primary switch** in a predetermined time period, a primary NIC is configured to disable data transfer to the primary switch and a secondary NIC is configured to enable data transfer through the secondary switch.

Emphasis is added above to indicate key differences between Tosey and the claimed invention, i.e., Tosey is directed toward peer-to-peer connectivity testing and fails to teach performing a connectivity test between a primary NIC to a primary switch. Because Tosey teaches a method that tests a different connectivity, it fails to

teach each and every element of claim 1 even when combined with Applicant's Background teaching.

In the Response to Arguments in the August 24, 2005 Office Action, the Examiner states on page 10 that "Tosey teaches generating a connectivity signal (a ping) to the primary switch (hub A 22) to test connectivity from the network computing device 21 to the primary switch," and the Examiner believes this follows since the device 21 is passing the ping through the hub on its way to the peer device. However, **claim 1** specifically calls for sending a connectivity signal **to the switch** and to receive a **response from the switch**. This is functionally very different than the Tosey teaching of passing a ping through a hub to a peer device and then passing a response from the peer device through the hub to the sending network device. With the claimed system, the lack of a response indicates there is **no connectivity between the switch and the primary NIC**, which can be addressed as claimed by connecting the secondary NIC to the secondary switch.

In contrast, in Tosey, a lack of a response may indicate a connectivity problem anywhere between the peer device and the sending device – but would not definitively indicate the problem was between the sending device and the hub as the hub did not generate and send a response (i.e., is not responsible for responding). Hence, the fix provided in claim 1 may not be useful in Tosey as setting up a path to a new hub may not fix the connectivity issue (such as when the problem is between the hub and the peer). Tosey fails to show at least the generating of a connectivity signal that is sent to the primary switch and monitoring for a response signal from the primary switch (i.e., Tosey teaches sending a signal through the hub and receiving a signal from a peer through the hub), and claim 1 is not made obvious in light of the Tosey teaching and Applicant's background (which shows the use of a redundant I/O board and NIC but only discusses testing from the I/O board to the NIC).

The Examiner further argued in the final Office Action of August 24, 2005 at the top of page 11 that Tosey states that it can determine when the hub fails "therefore, the link test must also be used to test connectivity to the hub." Applicant strongly disagrees. Tosey indicates that if a network peer fails to respond to a ping this **may** indicate a failure **somewhere** within the transmission line/connection path between the sending device and the network peer. However, there is no way in the

Tosey method to know if the problem is between the sending device and the hub because the ping is not sent to the hub and responded to by the hub (i.e., the response is NOT from the hub which merely passes the ping and the response). The connectivity problem may be between the hub and the peer device or with the peer device itself.

In the Advisory Action, the Examiner stated "that the features upon which application relies (i.e., generating a connectivity signal destined to the primary switch, detecting a response signal generated by the primary switch...") are not recited in the rejected claim(s)." Appellant argues that this is simply wrong because this language is in claim 1 ("generating a connectivity signal to the primary switch to test connectivity from the primary I/O board to the primary switch" and "monitoring the primary I/O port to detect a response signal from the primary switch within a predetermined time period.." with emphasis added).

The Examiner seems to be implying the fact that signals are passed through the hub in Tosey that connectivity signals are sent "to" the hub and responses are sent "from" the hub, but Appellant believes this is clearly incorrect as addressing within a computer network or system requires an IP address or similar address be provided with a hub merely being a conduit for signals addressed to a peer device and sent from a peer device (e.g., see Appellant's specification at page 9 lines 29-32 which discusses the use of "a specific IP address or destination device" such as the switch that receives the connectivity signal and sends back a response). Further, claim 1 further defines the "to" and "from" of claim 1 by calling for the generation of the connectivity signal to be performed to "test connectivity from the primary I/O board to the primary switch." Tosey fails to teach a signal that is useful for testing connectivity between its first peer device and its hub, as the loss of connectivity is between the two peer devices (i.e., the signal is to the second peer and from the second peer and only through the hub (and, in a similar vein, it would not be argued by those skilled in the art that the connectivity communication in Tosey is to and from the wire or cable connecting the two peers)).

In an attempt to address this issue, Appellant filed a Pre-Appeal Brief Request for Review in which Appellant argued that the Examiner apparently was not giving any (or proper) weight to the claim language. The decision on this request did not

provide any findings on whether the Examiner was reading claim language out of the claims but simply stated that there remained at least one actual issue for appeal, without stating which issue. Hence, Appellant believes it is very likely that once this claim language is given its proper weight that the rejection of claim 1 will be found to be unsupported.

To assist in the review of the rejection of claim 1, it may be useful to look more thoroughly at Tosey to understand the differences between Tosey's teachings and the system of claim 1. From step (b) of the method of claim 1 of Tosey, it can be seen that the Tosey disclosure is directed to "testing a communication link with at least one said individual peer computing device on said list of network addresses using said primary network interface, wherein said testing of said communication link is executed periodically until at least one said individual peer computing device from said list of network addresses responds." As can be seen, any intermediary devices such as a hub or switch do not generate the response or receive the response during the testing of the link to the peer device as the peer device responds. This produces a differing result than the system of claim 1. For example, Tosey requires an active peer for the testing to work (i.e., what happens if the testing device is the first active peer – appears Tosey needs at least two devices or else it would continually fail over). In contrast, in the system of claim 1, connectivity between the primary NIC and switch can be checked without any peer devices for the server and/or hosts of claim 1.

Further, claim 1 calls for a connectivity signal to be used. Tosey relies solely on higher level peer connectivity tests, which further supports Applicant's argument that the ping is not sent to the hub or responded to by the hub as hubs generally do not include intelligence for responding to higher level tests. For example, Tosey states that there "are three main techniques that could be used to carry out this test: the Internet control message protocol (ICMP), the address resolution protocol (ARP), or the method of attempting to access a TCP or UDP port on another device" (see, col. 6, lines 46-55). Again, all the discussion in Tosey is directed to peer-to-peer communications between networked computing devices and not an I/O board to a switch.

The following discussion was provided in Appellant's prior Amendments and is included because Applicant believes it is still relevant and distinguishes claim 1 from Tosey and the teaching of Applicant's Background.

> "As discussed in Applicant's Background, prior to Applicant's invention, prior adapter systems that addressed the problem of a single point of failure (SPOF) had redundancy but "could only test connectivity up to the NIC and could not query the switch or any other remote device on the network. Accordingly, the switch could fail and the HAnet system would not detect it, because it had no capability to go beyond the NIC layer." The adapter system of claim 1 is not shown by Applicant's Background teach because prior adapter systems were only configured to test connectivity up to the NIC.
>
> The Office Action cites Tosey for teaching in its Figures 2 and 4A generating a signal to a primary switch to test connectivity up to that switch. Applicant disagrees with this construction of Tosey's teaching. In Figure 4A, Tosey teaches its failure detection and recovery method. As can be seen, Tosey teaches transmitting a link test "to candidate network peers" and not to the hub 22. Claim 1 calls for the connectivity signal to be sent to the primary switch and a response signal to be monitored to determine connectivity from the primary I/O board to the primary switch.
>
> In contrast, Tosey teaches that "a network computing device must establish that it cannot communicate with any other device through the network interface card" (see, col. 5, lines 64-66) and does so by contacting the router 24 (see col. 6, lines 4-5) to see if the network computing device 21 can communicate with one of its peer devices (not shown in Figure 2). Steps 104 and 108 of Figure 4A is explained in more detail from col. 6, line 25 to col. 7, line 34. As can be seen from this description, Tosey is describing a technique of a first network computing device 21 looking for at least one other network computing device or peer connected to the router 24 that it can communicate with and by finding such a device or peer it is sufficient to determine that the network interface 25 of the device 21 has not failed. However, if a signal is not received, the network computing device 21 will not be able to determine if

the failure is in the hub 22, in the link 29, in the router 24, or elsewhere in the networked system 28. The link test passes through the hub 22 but is not responded to by the hub 22 which merely passes a response from a peer device to the computing device 21.

In direct contrast, the adapter system of claim 1 calls for sending a connectivity signal to the primary switch and waiting for a response signal from that primary switch. In this manner, the adapter system of claim 1 is able to accurately identify a failure within the adapter system but out to the switch. Because the combination of Applicant's Background and Tosey fail to teach or suggest each element of claim 1, the rejection of claim 1 is improper and should be withdrawn."

Claims 2-6 depend from claim 1 and are believed allowable as depending from an allowable base claim.

Independent claim 8 is directed to a method claim with similar limitations (but in method form) as that of claim 1. Hence, the reasons for allowing claim 1 over the combined teachings of Applicant's Background and Tosey are believed applicable to claim 8. Claims 9-13 depend from claim 8 and are believed allowable as depending from an allowable base claim.

Independent claim 15 is similar to claim 1 but calls for specific network information to be transferred to the secondary NIC, and the transfer of this type of information is not shown by the cited references. The final Office Action cites Figures 5A and 5B showing transferal of a mobile IP address for a failed NIC 25 to a secondary NIC 26. However, this does not show transferring network information including IP addresses "of other devices connected to the network netmask, or broadcasts" from a primary to a secondary NIC. Hence, Tosey fails to overcome the admitted lack of teaching of the claimed invention in Applicant's Background, and Tosey combined with Applicant's Background does not support an obviousness rejection of claim 15. The Advisory Action provides no discussion of this argument made by the Appellant.

Dependent claims 6 and 10, which depend from claims 1 and 8, respectively, contain limitations similar to that of claim 15. Hence, these claims are believed allowable over the cited art for this additional reason.

B. Rejection of Claims 7 and 14 Under 35 U.S.C. §103(a) Based on Appellant's Background, Tosey, and Liu is Improper

Also, claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Background in view of Tosey and further in view of U.S. Pat. No. 6,243,838 ("Liu"). This rejection is traversed based on the following remarks.

Claims 7 and 14 depend from claims 1 and 8, respectfully, and are believed allowable as depending from an allowable base claim. Liu is cited for teaching the notification of a system administrator feature added by these claims (e.g., notification after determination of a loss of connectivity between a primary I/O board and a primary switch). However, Liu fails to overcome the deficiencies of Applicant's Background and Tosey, and hence, the combination of these 3 references fails to teach or suggest the system and method of base claims 1 and 8. Therefore, claims 7 and 14 are allowable for the reasons for allowing claims 1 and 8.

Conclusion

In view of all of the above, claims 1-15 are believed to be allowable and the case in condition for allowance. Appellant respectfully requests that the Examiner's rejections based on 35 U.S.C. §103 be reversed for all the pending claims.

Respectfully submitted,

Date: January 25, 2006

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VIII. CLAIMS APPENDIX

1. A communication adapter system for connecting a client to a network, the system comprising:

a server having a memory electrically connected to the client;

a primary Input/Output (I/O) board electrically connected to the server and having a primary network interface card (NIC), the primary NIC having a primary I/O port for connecting to the network, the primary NIC selectively enabling active transfer of data from the client to the network through the primary I/O port;

a secondary I/O board electrically connected to the server and having a secondary NIC, the secondary NIC having a secondary I/O port for connecting to the network, the secondary NIC selectively enabling active transfer of data from the client to the network through the secondary I/O port;

a primary switch electrically connected to the primary I/O port and the network;

a secondary switch electrically connected to the secondary I/O port and the network; and

program signals stored in the memory of the server and defining an executable program for:

generating a connectivity signal to the primary switch to test connectivity from the primary I/O board to the primary switch;

monitoring the primary I/O port to detect a response signal from the primary switch within a predetermined time period after the generation of the connectivity signal;

configuring the primary NIC to disable active transfer of data if the response signal is not detected within the time period; and

configuring the secondary NIC to enable the active transfer of data if the response signal is not detected within the time period.

2. The system of Claim 1 wherein the network is a Fiber Distributed Data Interface (FDDI) network.

3. The system of Claim 1 wherein the program comprises generating a connectivity signal to a remote device on the network to test connectivity from the primary I/O board through the primary switch and to the remote device.

4. The system of Claim 1 wherein the connectivity signal is a ping signal.

5. The system of Claim 1 wherein the program comprises transferring network information from the primary NIC to the secondary NIC.

6. The system of Claim 5 wherein the network information includes one of an Internet Protocol (IP) address, a netmask, a broadcast, and a logical IP address.

7. The system of Claim 1 wherein the program comprises notifying a systems administrator of a failure.

8. A method for detecting failures in a communication adapter system for connecting a client to a network, the method comprising:

generating a connectivity signal from a primary Input/Output (I/O) board of the system to a primary switch of the system to test connectivity at least from the primary I/O board to the primary switch;

monitoring a primary I/O port of the primary I/O board to detect a response signal within a predetermined time period after the generation of the connectivity signal;

configuring a primary Network Interface Card (NIC) of the primary I/O board to disable active transfer of data from the client to the network through the primary I/O port if the response signal is not detected within the time period; and

configuring a secondary NIC of a secondary I/O board of the system to enable the active transfer of data from the client to the network through a secondary I/O port of the secondary I/O board if the response signal is not detected within the time period.

9. The method of Claim 8 wherein the network is a Fiber Distributed Data Interface (FDDI) network.

10. The method of Claim 8 wherein generating includes generating a connectivity signal to a remote device on the network to test connectivity from the primary I/O board through the primary switch and to the remote device.

11. The method of Claim 8 wherein generating includes generating a ping signal.

12. The method of Claim 8 comprising transferring network information from the primary NIC to the secondary NIC.

13. The method of Claim 12 wherein transferring includes transferring one of an Internet Protocol (IP) address, a netmask, a broadcast, and a logical IP address.

14. The method of Claim 8 comprising notifying a systems administrator of failure.

15. A communication adapter system for connecting a client to a network, the system comprising:

a host connected to the client;

a primary Input/Output (I/O) board connected to the host and having a primary network interface card (NIC), the primary NIC having a primary I/O port for connecting to the network, the primary NIC selectively enabling active transfer of data from the client to the network through the primary I/O port;

a secondary I/O board connected to the server and having a secondary NIC, the secondary NIC having a secondary I/O port for connecting to the network, the secondary NIC selectively enabling active transfer of data from the client to the network through the secondary I/O port;

a primary switch electrically connected to the primary I/O port and the network;

a secondary switch electrically connected to the secondary I/O port and the network; and

an adapter mechanism on the server operating as follows:

generating a connectivity signal to the primary [[I/O]] switch to test connectivity from the primary I/O board to the primary switch;

monitoring the primary I/O port to detect a response signal from the primary switch within a predetermined time period after the generation of the connectivity signal;

configuring the primary NIC to disable active transfer of data if the response signal is not detected within the time period; and

configuring the secondary NIC to enable the active transfer of data if the response signal is not detected within the time period, the configuring including transferring network information from the primary NIC to the secondary NIC, wherein the network information comprises IP addresses of other devices connected to the network, netmasks, or broadcasts.

IX. EVIDENCE APPENDIX

No copies of evidence are required with this Appeal Brief. Appellant has not relied upon any evidence submitted under 37 C.F.R. §§ 1.130, 1.131, or 1.132.

X. RELATED PROCEEDINGS APPENDIX

There are no copies of decisions rendered by a court or the Board to provide with this Appeal as there are no related proceedings.

Express Mail No. EL961394181US
Client/Matter No. 80168.0343

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Serial No. 09/932,553	Art Unit: 2663
Filed: August 17, 2001	Examiner: Nittaya Juntima
For: REDUNDANT COMMUNICATION ADAPTER SYSTEM FOR CONNECTING A CLIENT TO AN FDDI NETWORK	Customer No. **32658** Attorney Docket No.: P6263

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The undersigned hereby certifies that the following documents:

1. Transmittal of Brief on Appeal;
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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TRANSMITTAL OF BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please find enclosed an Appellants' Brief for the above application. Also, please find enclosed a check in the amount of $500.00. Any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

January 25, 2006

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